

# Gas Actuated Thermometers

Process Industry Series • Model 73  
Distant Reading with Capillary

## Thermometers

### Service intended

All stainless steel thermometer. Suitable for corrosive media and environments in chemical process, petroleum and food industry. The instruments meet the highest standards of measurement technique.

### Nominal size

100 and 160 mm

### Temperature element

Inert gas expansion system (non-toxic)

### Accuracy

Class 1 per DIN EN 13 190

### Working range

Permanent (1 year): measuring range per DIN EN 13 190

Short time (24 h max.): scale range per DIN EN 13 190

### Pressure rating of stem

25 bar maximum

### Nominal use

DIN EN 13 190

### Ingress protection

IP 56 / IP 65 per EN 60 529 / IEC 529

IP 65 per EN 60 529 / IEC 529 for gauges with alarm contacts

### Standard features

#### Distant reading capillary entry

Centre back or radial bottom

#### Case material

Stainless steel

#### Bezel

Cam ring (bayonet type) bezel, natural finish stainless steel

#### Connection

Plain stem, stainless steel 1.4571

#### Capillary

Length to user specifications, 2 mm diameter, stainless steel 1.4571, bending radius no less than 6 mm

#### Stem

8 mm diameter, stainless steel 1.4571

The active length of the stem depends upon the diameter and the scale range.

#### Dial

White aluminium with black lettering per DIN EN 13 190

#### Pointer

Adjustable black aluminium pointer

#### Window

Laminated safety glass

#### Mounting provisions

- 3-hole surface mounting flange (code H), stainless steel
- Surface mounting bracket made of die cast aluminium (code M)
- 3-hole panel mounting flange (code V), stainless steel
- Triangular bezel with clamp (code D), stainless steel



Scale, measuring ranges<sup>1)</sup>, limits of error per DIN EN 13 190, class 1

Scale range °C	Scale spacing °C	Measuring range <sup>1)</sup> °C	Limit of error °C
- 80 ... + 60	2	- 60 ... + 40	2
- 60 ... + 40	1	- 50 ... + 30	1
- 40 ... + 60		- 30 ... + 50	
- 30 ... + 50		- 20 ... + 40	
- 20 ... + 60		- 10 ... + 50	
- 20 ... + 80		- 10 ... + 70	
0 ... 60		+10 ... + 50	
0 ... 80		+10 ... + 70	
0 ... 100		+10 ... + 90	
0 ... 120	2	+ 10 ... + 110	2
0 ... 160		+ 20 ... + 140	
0 ... 200		+ 20 ... + 180	
0 ... 250	5	+ 30 ... + 220	2.5
0 ... 300		+ 30 ... + 270	5
0 ... 400		+ 50 ... + 350	
0 ... 500		+ 50 ... + 450	
0 ... 600	10	+100 ... + 500	10
0 ... 700		+100 ... + 600	

1) The measuring range is indicated on the dial by two triangular marks.  
Within this range the stated limit of error is valid according to DIN EN 13 190.

## Models

Model	Nominal size	Capillary entry
H 7308	100	Radial bottom
H 7309	160	
M 7310	100	
M 7311	160	
V 7312	100	Back
V 7313	160	
D 7340 <sup>1)</sup>	100	
D 7350 <sup>1)</sup>	160	

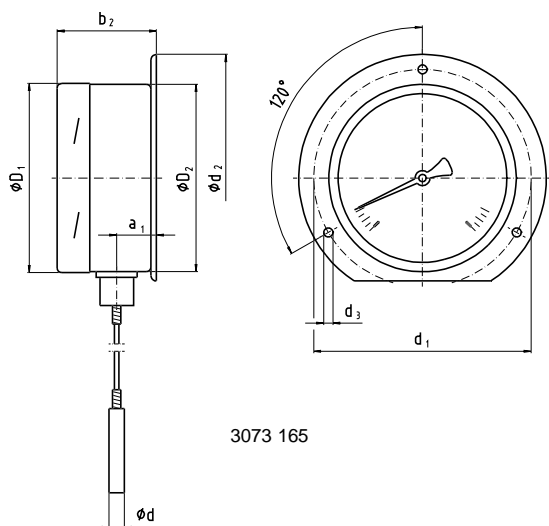
1) not suitable for alarm contacts

## Optional extras

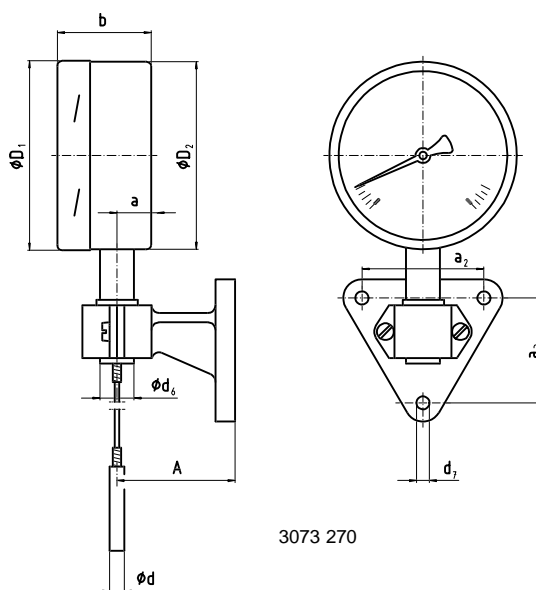
- Liquid damping
- Ingress protection IP 66 (not for gauges with alarm contacts)
- Scale °F, K; dual scale °C/°F
- Window of non-splintering plastic
- Stem 6, 10 or 12 mm diameter
- Armoured or coated capillary
- Capillary entry other than radial bottom
- Thermowells per DIN 43 772 or to user specifications
- Alarm contacts (see data sheet AC 08.01)
- Surface mounting bracket made of other material
- Other mounting provisions

Dimensions in mm

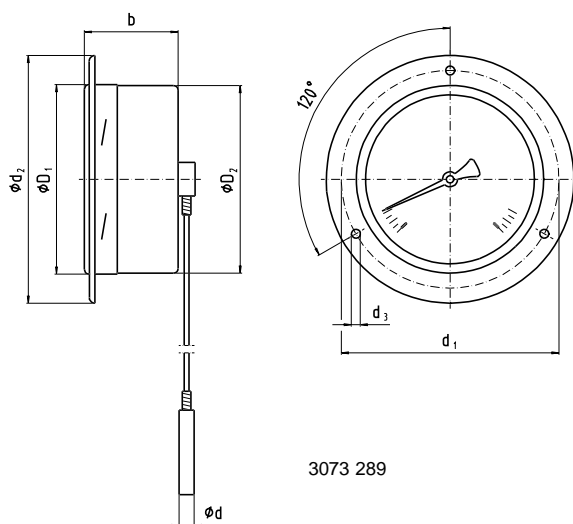
3-hole surface mounting flange (H)



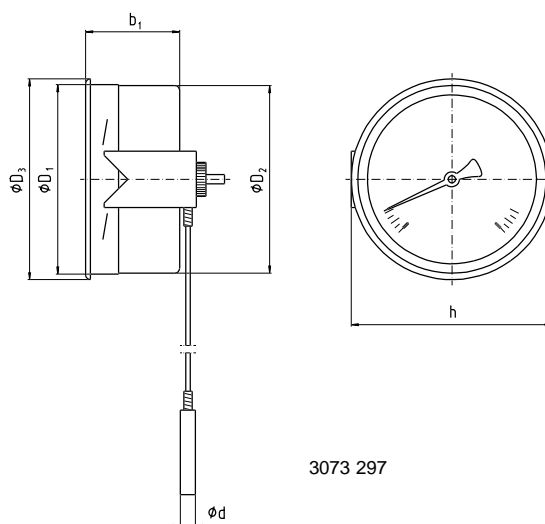
Surface mounting bracket (M)



3-hole panel mounting flange (V)



Triangular bezel (D) <sup>1)</sup>



Nominal size	Dimensions in mm											
	A	a	a <sub>1</sub>	a <sub>2</sub>	a <sub>3</sub>	alarm contacts of model 811, 821, 830 E or 831						
						without			1 or 2		3	
						b	b <sub>1</sub>	b <sub>2</sub>	b	b <sub>2</sub>	b	b <sub>2</sub>
100	100	19	22	65	56	50	51	53	88	91	97	100
160	100	19	22	65	56	50	51	53	88	91	97	100

Nominal size	Dimensions in mm										Weight in kg
	d	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>6</sub>	d <sub>7</sub>	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	h	
100	8	116	132	4.8	18	7	101	99	107	107	1.400
160		178	196	5.8			161	159	166	172	1.800

1) not suitable for alarm contacts

## Design of connection

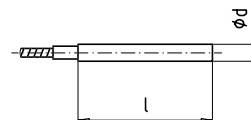
### Connection 1

Plain stem

Length of stem  $l = 140, 200, 240$  or  $290$  mm

Stainless steel 1.4571

To suit compression fitting of connection no. 4



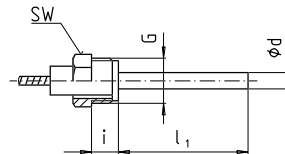
### Connection 2

Male nut  $G \frac{1}{2} B$

Length of stem  $l_1 = 80, 140, 180$  or  $230$  mm

Stainless steel 1.4571

Male thread G	SW	i
$G \frac{1}{2} B$	27	20



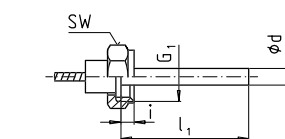
### Connection 3

- Union nut  $G \frac{1}{2}$ ,  $G \frac{3}{4}$  or  $M 24 \times 1.5$

Length of stem  $l_1 = 89, 126, 186, 226$  or  $276$  mm

Stainless steel 1.4571

Female thread $G_1$	SW	i
$G \frac{1}{2}$	27	8.5
$G \frac{3}{4}$	32	10.5
$M 24 \times 1.5$	32	13.5



### Connection 4

Compression fitting (sliding on stem)

$G \frac{1}{2} B$ ,  $G \frac{3}{4} B$ ,  $M 18 \times 1.5$ ,  $\frac{1}{2}$  NPT or  $\frac{3}{4}$  NPT

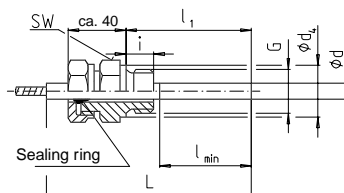
Minimum insertion length  $l_{min}$  approx. 60 mm

Length of stem  $l_1 = \text{variable}$

Length  $L = l_1 + 40$  mm

Stainless steel 1.4571

Male thread G	SW	$d_4$	i
$G \frac{1}{2} B$	27	26	14
$G \frac{3}{4} B$	32	32	16
$M 18 \times 1.5$	24	23	12
$\frac{1}{2}$ NPT	22	-	19
$\frac{3}{4}$ NPT	30	-	20



### Connection 5

- Union nut  $G \frac{1}{2}$

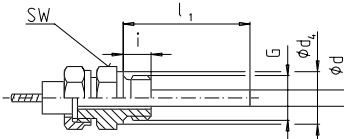
with fitting  $G \frac{1}{2} B$ ,  $G \frac{3}{4} B$ ,  $\frac{1}{2}$  NPT or  $\frac{3}{4}$  NPT

Length of stem  $l_1 = 63, 100, 160, 200$  or  $250$  mm

Stainless steel 1.4571

- Union nut  $M 24 \times 1.5$  with fitting  $M 18 \times 1.5$

Male thread G	SW	$d_4$	i
$G \frac{1}{2} B$	27	26	14
$G \frac{3}{4} B$	32	32	16
$M 18 \times 1.5$	24	23	12
$\frac{1}{2}$ NPT	22	-	19
$\frac{3}{4}$ NPT	30	-	20



### Connection 6

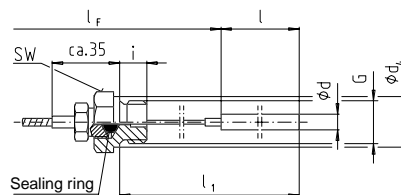
Compression fitting (sliding on capillary)

$G \frac{1}{2} B$ ,  $G \frac{3}{4} B$ ,  $\frac{1}{2}$  NPT or  $\frac{3}{4}$  NPT

Length of stem  $l = 100$  mm (other on inquiry)

Stainless steel 1.4571

Male thread G	SW	$d_4$	i
$G \frac{1}{2} B$	27	26	14
$G \frac{3}{4} B$	32	32	16
$\frac{1}{2}$ NPT	22	-	19
$\frac{3}{4}$ NPT	30	-	20



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## Ordering information

Model / Nominal size / Scale range / Location of capillary entry / No. and size of connection / Mounting provisions / Length of stem  $l$ ,  $l_1$  / Length of capillary  $l_F$  / Optional extras required

Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.



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